Space Weather Forecast

Issued on Friday 28 February 2025 at 01:22 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Isolated Moderate class flares likely. Isolated Minor Storms likely, mainly today (28 Feb).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Low with occasional Common-class flares. There are currently nine sunspot regions on the Earth-facing disc, most of which are very small and weak, magnetically simple and either stable or decaying. The most likely flare source is a region in the southwest, which is the largest region on the disc, however this region is expected to rotate onto the southwest limb today (28 Feb). A slightly smaller region in the northeast has a similar moderate magnetic complexity. However, this region in the northeast has been stable recently and not a source of the C-class flares, unlike the region approaching the southwest limb.

A filament eruption which occurred around 27/1730 UTC near the NE limb generated a CME. This is yet to be fully analysed but is not expected to be Earth directed.

Solar Wind / Geomagnetic Activity: The solar wind was mainly Elevated, although occasionally reached Strong levels, with the continued connection to a solar wind enhancement. A very weak CME may have also arrived around the middle of the day, with the CME impacts boosted by the solar wind enhancement. This may have been the CME from the 24th. Interplanetary Magnetic Field persisted at Moderate levels. The north-south component predominantly fluctuated weakly, but was occasionally Moderately southward around the middle of the day. Geomagnetic activity was Unsettled to Active with a Moderate geomagnetic storm between 27/0900-1200 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) was slightly above background levels, but below the S1/Minor Radiation Storm and declining.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is forecast with isolated Moderate-class flares likely at first, reducing to a chance of isolated Moderate-class flares from day 3 (2nd Mar).

Solar Wind / Geomagnetic Activity: Glancing CME influences still can't be completely ruled out today (28 Feb) from the filament eruptions 26/0600UTC and 26/1445 UTC. Wind speeds are likely to remain elevated or strong until day 4 (3rd Mar) then likely decreasing to Slightly Elevated levels. Unsettled to Active geomagnetic activity is expected until day 4 (3rd Mar) with perhaps isolated

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Met Office Space Weather Forecast

Minor to Moderate geomagnetic storms, most likely today (28 Feb). Through Day 4 (3rd March) geomagnetic activity is expected to decline to predominantly Quiet to Unsettled levels.

Energetic Particles / Solar Radiation: The count rate of energetic particles (High energy protons) is expected to continue decline, reaching background levels. There remains a slight chance of further enhancements.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	**G1 to G2**	Yes	60	40	20	10
Strong	**G3**	No	5	1	1	1
Severe	**G4**	No	1	1	1	1
Extreme	**G5**	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**R1-R2 (M Class)**	No	50	50	45	45
Very Active	**R3-R5 (X Class)**	No	5	5	1	1

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	10	10	5	5
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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